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DATE: February 23, 2004 FILE #: 146800

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USPTO - Mail Stop: Reissue		703 872-9306

MESSAGE: Serial No. 10/655,988 - Filed Sept. 4, 2003 - Butadiene Polymers Having Terminal Functional Groups

Attached is Protest Under 37 CFR § 1.291 on 7 pages (including the certificate of service), plus Declaration in Support of Protest on 2 pages, plus transmittal page and this cover sheet for a total of 11 pages

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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>		Application Number	10/655,988
		Filing Date	Sept. 4, 2003
		First Named Inventor	Handlin
		Art Unit	1712
		Examiner Name	not known
Total Number of Pages in This Submission		Attorney Docket Number	146800

ENCLOSURES (check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s)	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) <i>(please identify below):</i> Protest Under 37 C.F.R. 1.291 Declaration in Support of Protest
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Michael B. Fein
Signature	
Date	Feb. 23, 2004

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re S. N. 10/655,988

Application to Reissue U.S. Pat. 5,405,911

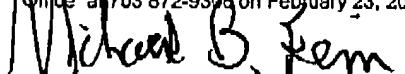
Filed: Sept. 4, 2003 **Group Art Unit:** 1712

Inventor: Handlin, Jr., et al.

For: Butadiene Polymers Having Terminal Functional Groups

Notice of Reissue Application Published in O.G.: December 23, 2003

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 Michael B. Feln, Reg. 25, 333

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PROTEST UNDER 37 C. F. R § 1.291

Sartomer Technology Company, Inc. (Protestor), through its undersigned attorneys, hereby protests the grant of the claims of the above-identified reissue application since each of the proposed claims are unpatentable under 35 U.S.C. §§ 102, 103, and 112. Each of the claims is anticipated, obvious, and fails to particularly point out and distinctly claim the subject matter of the invention.

Below are the claims as proposed in the "Amendment to Claims of Original Patent" filed with the above-identified reissue application and Protestor's comments.

REISSUE APPLICATION CLAIMS

1. (currently amended) A polymer composition, produced by the steps of: reacting one or more compounds with the terminal functional groups on a polymer, and said polymer consists essentially of

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polymerized 1,3-butadiene having a peak molecular weight between 500 and 20,000, 1,2-addition between 30% and 70%, and hydrogenation of at least 90% of the unsaturation; a ratio of viscosity (in poise at room temperature) to peak molecular weight raised to the 3.4 power of at most 2.0 times 10⁻⁹; and
about two one or more terminal functional groups per molecule.

2. (currently amended) The polymer composition of claim 1, wherein the terminal functional groups of the polymer are elected from a the group consisting of hydroxyl, carboxyl, phenol, epoxy, and amine groups.

3. Cancelled

4. (currently amended) The polymer composition of claim 3, wherein the polymerized 1,3-butadiene has a peak molecular weight between 1,000 and 10,000.

5. (currently amended) The polymer composition of claim 4, wherein the polymerized 1,3-butadiene is at least 95% hydrogenated.

6. (currently amended) The polymer composition of claim 5, wherein the ratio of viscosity to peak molecular weight raised to the 2.4 power of the polymer is less than 1.0 times 10⁻⁹.

7. (currently amended) The polymer composition of claim 6, wherein the terminal functional groups of the polymer consist of about two hydroxyl groups per molecule.

8. (currently amended) The polymer composition of claim 1, wherein the peak molecular weight of the polymer is between 1000 and 10000.

9. (currently amended) The polymer composition of claim 8, wherein the 1,2-addition of the polymerized 1,3-butadiene is between 40% and 60%.

10. (original) The polymer composition of claim 1, wherein the polymerized 1,3-butadiene has about two hydroxyl groups per molecule.

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11. (currently amended) The polymeric polymer composition of claim 10, wherein the polymerized 1,3-butadiene is reacted with compounds that form a coating.
12. (currently amended) The polymeric polymer composition of claim 10, wherein the polymerized 1,3-butadiene is reacted with compounds that form a block selected from the group consisting of polyesters, polyamides, and polycarbonates.
13. (new) The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 10,000.
14. (new) The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 5,000.
- 15.(new) The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 3,000.
16. (new) The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 2,000.
17. (new) The polymer composition of claim 4 wherein the polymer has a peak molecular weight of about 10,000.
18. (new) The polymer composition of claim 4wherein the polymer has a peak molecular weight of about 5,000.
19. (new) The polymer composition of claim 4 wherein the polymer has a peak molecular weight of about 3,000.
- 20.(new) The polymer composition of claim 4 wherein the polymer has a peak molecular weight of about 2,000.
21. (new) The polymer composition of claim 1 wherein the polymerized 1,3-butadiene has 1.5 terminal functional groups or more per molecule.
22. (new) The polymer composition of claim 1 wherein the polymerized 1,3-butadiene has 1.5 terminal functional groups per molecule.
24. (new) The polymer composition of claim 1 wherein the polymerized 1,3-butadiene has 1.7 terminal functional groups or more per molecule.
25. (new) The polymer composition of claim 1 wherein the polymerized 1,3-butadiene has 1.9 terminal functional groups or more per molecule.

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REMARKS

Prior to the patent owner's filing this reissue application, Protestor brought to the patent owner's attention on May 27, 2003, three references which were not considered during the prosecution of the original patent application and which Protestor believed anticipated the claims of the above-referenced patent. Apparently the patent owner agreed with Protestor that the original patent claims were anticipated by one or more of the three literature references brought to patent owner's attention by Protestor since the current reissue application was filed within a few months thereafter on Sept. 4, 2003. Applicants have cited said three references on the Supplemental Information Disclosure Sheet filed along with the current reissue application as AK, AL, and AM, which are the identifications on applicants' Supplemental IDS, as follows:

AK "Synthesis and Properties of Partially and Fully Hydrogenated Diene Oligomers" by Yves Camberlin, Jean Gole, Jean Pierre Pascault, Jean Pierre Durand, and François Dawans, Makromol. Chem. 180, 2309-2321 (1979).

AL "Saturated Hydrocarbon Polymers for Solid Rocket Propellants" by A. J. DiMilo and D. E. Johnson, M. Macromol. Sch-Chem. A3(7), 1419-1442.

AM "The Hydrogenation of OH-Terminated Telechelic Polybutadienes in the Presence of a Homogenous Hydrogenation Catalysts Based on Tris(triphenylphosphine)rhodium Chloride" by Karel Bouchal, Michal Ilavsky and Eva Zurkova. Die Angewandte Makromolekulare 165, 165-180 (1989).

In order to cure the defect of invalidity of the original patent, Reissue-Applicant has proposed to amend claim 1 by incorporating the limitations of original claim 3, that the polymer has "a ratio of viscosity (poise at room temperature) to peak molecular weight raised to the 3.4 power of at most 2.0 times 10^{-9} ," and adding the additional limitation that the polymer have "about two [rather than one] or more terminal functional groups per molecule." Applicant has proposed to cancel claim 3, to change the dependencies of claims 2, 4, 6, and 9, and to add dependent claims 13 – 25.

However, the newly proposed limitations to claim 1 do not cure the defects in original claim 1 since such limitations were also anticipated by the newly cited prior art. Furthermore, there is no limitation in any of the dependent claims which cures the defects in the original

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claims. Therefore claim 1 and all of the claims dependent thereon, as applicant has proposed to amend them, should be rejected.

Reference AM discloses on page 167 the synthesis of hydroxyl terminated telechelic polybutadienes prepared by anionic polymerization of butadiene on dilithium catalyst and functionalized with ethylene oxide having $M_n=5100$, functionality distribution of $f_0=1$ mol-%, $f_1=9$ mol-%, and $f_2=90$ mol-% (i.e., "about two or more terminal functional groups per molecule"), 1,2-addition of 59.1%, and hydrogenation of greater than 98%. According to the accompanying Declaration of Dr. Taejun Yoo, a polymer made according to such synthesis procedure and having the same properties has a measured viscosity of 114,000 centipoise at room temperature and has a calculated ratio of viscosity (poise at room temperature) to peak molecular weight raised to the 3.4 power of 0.3 times 10^{-9} . Therefore AM fully anticipates claims 1 -12, 14, 18, and 25 as presented in the instant reissue application and should be rejected under 35 U.S.C. 102.

The minor differences between the limitations of claims 13, 15-17, and 19 - 24 versus what is taught and is inherent in the teachings of AM would have been obvious to one skilled in the art and therefore unpatentable under 35 U.S.C. 103. The selection of a molecular weight of 10,000, 3,000, or 2,000 or terminal functional groups per molecule of 1.5 or 1.7 would have been obvious. These claims should be rejected as obvious over reference AM.

Claims 21-22 are limited to 1.5 terminal functional groups per molecule but are dependent on claim 1 which has been amended to require about 2 or more terminal functional groups per molecule and therefore fails to meet the requirements of 35 U.S.C. 112.

There is no claim 23 and so the numbering in the reissue application amendment is improper.

Claim 24 is limited to 1.7 terminal functional groups but is dependent on claim 1 which requires about 2 terminal functional groups, and is therefore improper under sec. 112.

Claim 25 is limited to 1.9 terminal functional groups but is also dependent on claim 1, again being therefore improper under sec. 112.

Claims 21-25 should therefore be rejected under the second paragraph of 35 U.S.C. 112 because they are broader than the claims from which they depend.

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Furthermore, a reference which was cited and overcome during the prosecution of the original application, Jones, U.S. Pat. 3,629,172, discloses a Polymer No. 9 in Table II in col. 6, which is described in Ex. IV beginning at col. 5, line 50. Polymer 9 is disclosed to be a hydroxy-terminated telechelic butadiene polymer which has a peak molecular weight of 2,600, is hydrogenated so that no more than 5 % of the unsaturation remained, i.e., a hydrogenation of at least 95%, having a vinyl content, i. e., 1, 2-addition, of 52%, which is between the 30% and 70% ratio of the claim, a viscosity in cps. of 36,000, and a ratio of viscosity (poise at room temperature) to peak molecular weight raised to the 3.4 power which can be calculated to be 0.882 times 10^{-9} , which is below the claims 1 and 10 limitation of "at most 2.0 times 10^{-9} ." Therefore claims 1 and 10 are fully anticipated by Jones '172. Furthermore, claims 2, 4, 5, 6, 7, 8, 9, 11, 12, 14, 15, 16, 17, and 20 are anticipated under 35 U.S.C. 102 by Jones '172. Claims 18, 19, 21, 22, and 23 are unpatentable as obvious under 35 U.S.C. 103 over Jones '172 because the limitations which they recite are merely variations or selections which would have been obvious.

In conclusion, the proposed amendments to the claims do not overcome the references cited by Protestor to Patent Owner a few months before Patent Owner filed this reissue application, nor do they overcome Jones '172 which was cited during prosecution of the original application, and therefore they do not cure the invalidity which was the reason for which the reissue application was filed.

Respectfully Submitted,



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Certificate of Service

I hereby certify that this paper is being served today, February 23, 2004, as follows:

1. By mailing a true and correct copy of this document and exhibits to Gene L. Tyler, Madan, Mossman & Sriam, 2603 Augusta, Suite 700, Houston, TX 77057 by first class mail with proper postage affixed
2. By facsimile to the USPTO central fax number (703 872-9306) today.

Michael B. Fein
Michael B. Fein